

## **8 Social Analysis**

This chapter presents findings related to social well being. Discussions includes political divisions, communities, employment, income, social well being, and other categories of social effects. The focus of the social analysis is potential irrigation and recreation related impacts on (1) those who live in irrigation service areas and (2) those who use reservoirs and rivers for recreation purposes.

In the Snake River basin, there are residents who may have a direct or indirect interest in the enhancement of salmon and steelhead. As indicated in chapter 1, Reclamation did not analyze the potential effects of flow augmentation on salmon and steelhead as that analysis is the responsibility of the Corps. As a result, Reclamation had no basis for, and did not conduct, social analysis relative to potential changes in salmon and steelhead populations.

Given the magnitude of the Snake River basin and the difficulty of identifying social impacts, case studies were made of two irrigation service areas and two recreation areas. Under this approach, hydrology, economic, and other data were collected on the 1427i and 1427r scenarios and used in discussions with a limited number of knowledgeable persons in the case study areas. These discussions helped identify potential impacts to communities, families, and individuals. Discussions were also held with a few individuals in each irrigation service area to help identify unique conditions and impacts that might be potentially more significant to specific irrigation service areas.

### **8.1 Population and Communities**

#### **8.1.1 Idaho, Oregon, Nevada, and Wyoming**

Forty-two counties drain into the Snake River system from Idaho, Oregon, Nevada, and Wyoming. There are 167 communities within the basin with 1.1 million residents, ranging from major metropolitan areas to remote cross-road communities. A list of all named communities within the affected areas and up to 10 miles adjacent to the irrigation service areas was developed. The list includes unincorporated communities of as few as 8 residents, as well as incorporated townships. This selection is based upon the presumption that all identifiable communities have a role and use in local culture and thus warrant being included in the analysis. Where available, population growth trend and rate of change is reported and an estimate of the extent of economic diversity of employment within the communities is provided. This information is included in attachment I at the end of this report.

#### **8.1.2 Indian Reservations and Other Indian Tribes**

Another political division of the area is Indian reservations. Two Indian reservations are located in the area—the Fort Hall Indian Reservation in Idaho and the Duck Valley Indian Reservation that spans the Idaho/Nevada border.

##### **8.1.2.1 Fort Hall Indian Reservation**

The Shoshone and Bannock Tribes (population 3,593) occupy the Fort Hall Indian Reservation, which spans 544,000 acres near Blackfoot, American Falls, and Pocatello, Idaho. The Snake River, the Blackfoot River, and American Falls Reservoir form the northern and northwest boundaries of the reservation. Agriculture comprises one of the most significant sources of revenue on the reservation. About one-third of the reservation includes prime agricultural lands, of which nearly 73,000 acres are irrigated. Most of the irrigated lands are leased to outside farming interests, but the tribes operate about

2,000 acres of their own. Multiple livestock operations are located within or near the reservation, including a buffalo herd (350 cows) that is used for food services and retail sale. The tribes currently receive lease payments of about \$130 per acre of irrigated farmland and somewhat less for grazing land. Although there are several natural springs and slackwater areas on the reservation which support native fisheries, no commercial development of fishery or timber resources has occurred.

In recent years, the tribes have been expanding the local economy through commercial enterprise, developing and leasing phosphate mining, agricultural products manufacturing, tourism, and recreation. The labor force on the reservation is above 1,000, but unemployment remains high at about 26.5 percent (1996). Per capita income for residents of the reservation is \$4,610.

### **8.1.2.2 Duck Valley Indian Reservation**

The Shoshone and Paiute Tribes (908 persons) reside on the Duck Valley Indian Reservation which consists of approximately 290,000 acres located in southern Idaho and northern Nevada, approximately 100 miles north of Elko, Nevada.

The topography is characterized by rolling rangeland, traversed by the Owyhee and South Fork Owyhee Rivers. Over 260,000 acres of the uplands are used for grazing, and 14,000 acres are irrigated. An additional 3,000 acres are potentially irrigable. The BIA holds the land in trust for the tribes, and the tribes lease farmland through a bidding system to local farming contractors.

The predominant employment sectors in the region are government and agriculture. The predominant sources of commerce within the reservation are from recreational fishing at two reservoirs on the reservation, marina services, land leases, and grazing permits. Commercial development is very limited, although there is potential for agricultural and mineral development. The labor force consists of some 450 persons, and unemployment is typically very high (over 25 percent).

### **8.1.2.3 Other Indian Tribes**

The Burns-Paiute, Umatilla, Nez Perce and the Northwestern Band of the Shoshoni Indians have reservations or colonies which are outside the analysis area for this flow augmentation report. However, their traditional use areas extend within this area.

## **8.2 Values**

### **8.2.1 Rural Values**

Rural people in Idaho, Nevada, eastern Oregon, western Wyoming hold strong agrarian values, which are slowly changing as a result of in-migration of people from distant urban areas and economic change. Western rural people often extol the virtues of hard work, independence, conservative political views, utilitarian views of the land and natural resources, and the opportunity and right to access and use public lands for pleasure and livelihood. Most value land ownership, private property rights, and prudent fiscal management. They are prone to feel that their management of the land is a proper form of stewardship that enhances, not consumes the land. They often hold a strong sense of intimacy and attachment to their land, often building toward and bequeathing their heritage to future generations. Ranchers often treasure the sense of peace, quiet, and privacy their remoteness may provide, and dislike the intrusion of outsiders into their community.

Local communities are being affected by forces which they cannot control, forces they perceive to be dictated by state or Federal government or other outside interests including , market forces and immigration. Their sense of place (local identity) is being affected by immigration, growth, and development.

Still, rural residents realize they cannot exist in isolation, and they need the services that urban areas provide. This trend results in a double-bind in which rural communities appear to be increasingly linked to urban centers for economic survival, yet the residents feel left out of the process of forming decisions for the future of their community. These ongoing changes are powerful, dynamic, unpredictable, and generally uncontrollable at the local level, and communities are left with the challenge of adapting as they can.

Increased immigration to rural regions is indirectly fostering increased restrictions on use of the land area, increasing regulation, and changing the character and quality of the rural landscape. Ecologically oriented newcomers may volunteer to serve on governmental agency task forces to bring their version of 'improvement' to an area.

### **8.2.2 Urban Values**

Urban residents in Idaho tend to be more liberal and perceive themselves as more "environmentally-oriented" than their rural cousins, but they are comparatively conservative. Proposal for major environmental change in the region are likely to become very contentious.

### **8.2.3 Indian Values**

The Indian people hold concepts that are quite different from those of most non-Indians. To the Indian people, the land is sacred in its own behalf, and the natural resources provide for the lifestyle and economy of the people. Indian tribes in the inland northwestern states used to migrate in a 'great circle' across the landscape, moving to river valleys in the winter and to mountains in the summer to follow the natural food cycle produced by the seasons (Clark, 1953). Indian people harvested the earth's abundance in each area produced by the seasons, the root crops and nuts in winter and spring, the berries in summer, the salmon, deer and elk in the fall, and stored food to survive through the cycle.

Each ecosystem held a valued and unique role in supporting the people at different stages of time. Thus, tribes now dedicate much of their treaty rights, including reserved water rights, to the protect and preserve natural resources and wildlife. These include instream flows to support the native fishery; rangelands to support deer, elk and buffalo; and preserves for wild food crops.

The Winters Doctrine, established in 1908, declared that Indian reservation lands set aside by treaty include a reservation of sufficient water to fulfill the purposes of reserving the lands. In recent years, Tribal reserved water rights have been quantified through negotiations that must be approved by Congress to become effective.

For many tribes, water is essential to economic and cultural survival. In water rights negotiations, tribes may seek to dedicate some of their reserved water rights to in-stream use in support of the native fishery. Water rights so defined would, when approved, enjoy state recognized and protected priority dates.

## **8.2.4 Tourism**

The magnet that drew the original settlers a century ago now draws tourists who often import the urban conveniences and lifestyle to the rural countryside. Tourists often hold very different values from local people.

## **8.2.5 Recreationists**

People who enjoy and use the abundant recreational resources are a key public of the Pacific Northwest. Four different types of meaning which recreationists attach to the recreational landscape have been identified:

- Scenic/Aesthetic - the value of the visual character of the land, the scenic purity and integrity, and the multiple themes within the landscape (mountains, valleys, deserts, rivers, forests, seasons, wildlife, wilderness experience, etc.).
- Use of the resources - the value of protecting and maintaining the privilege of access and use of the recreational resource.
- Cultural/Symbolic - the human, emotional, spiritual and symbolic identification with place that people attach to recreational resources, which may include a shared sense of impersonal ownership and possession (favorite mountains, rivers, campgrounds, ski resorts, etc.).
- Individual/Expressive - the highly individualized and personal meanings people attach to a place or activity, and that is part of their “sense of self” (the identity of being an outdoor type of person, a hiker, a skier, etc.). Recreationists can be very pro-active in protecting the privilege and their personal use of recreational resources.

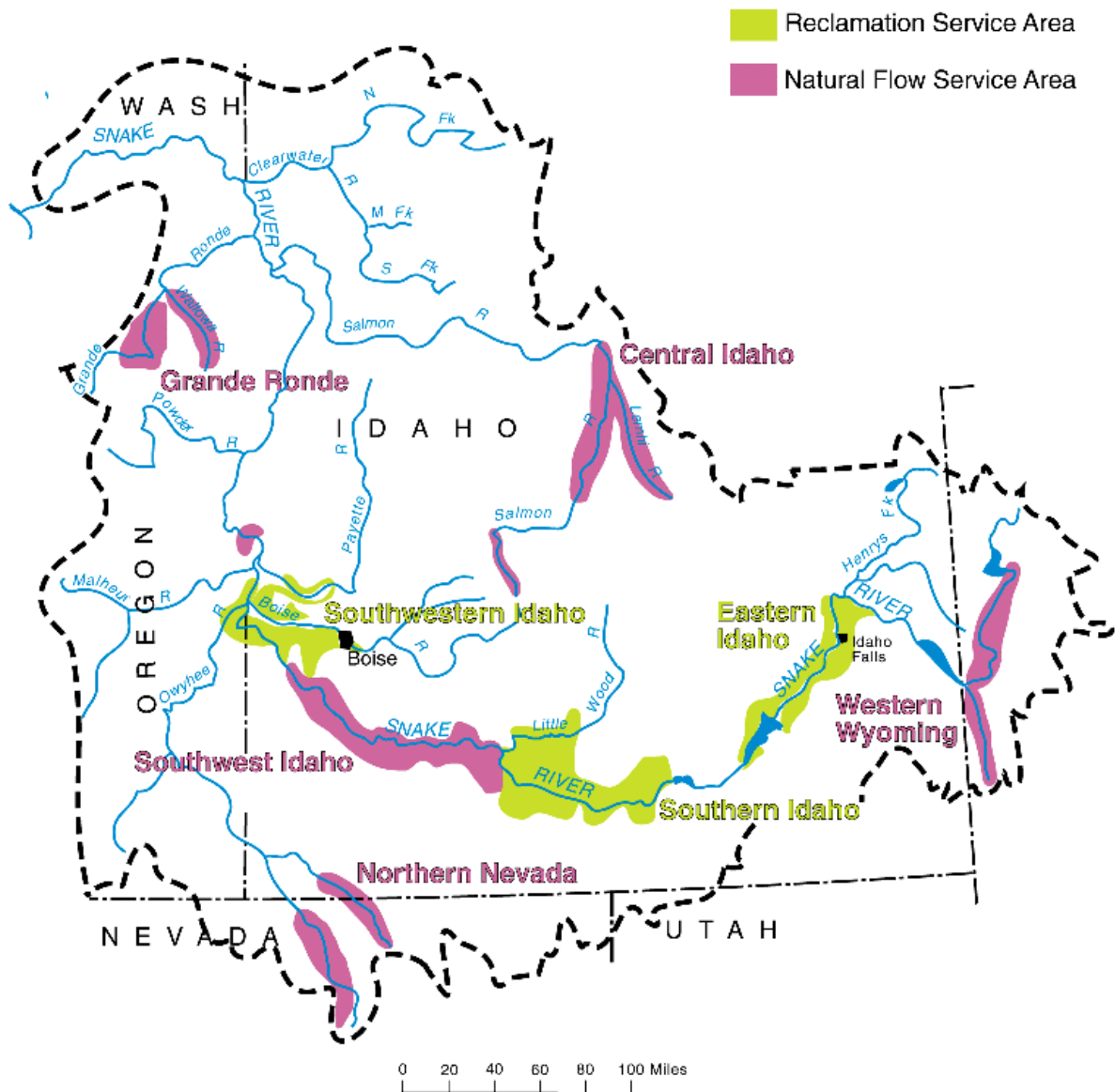
The meanings people attach to their recreational experience determine the quality of life for residents and visitors to the region. Recreationists tend to feel their land is something special to be treasured and protected, and are pro-active in supporting access and use of recreational opportunities.

## **8.3 Irrigation Service Areas**

### **8.3.1 Affected Environment**

Eight irrigation service areas were identified based on water supplies that could be impacted by one or more of the flow augmentation scenarios (see Snake River Basin Irrigation - Potential Impact Areas map). These irrigation service areas are not equivalent to the five irrigated agriculture economic regions (see figure 6-1) or the four functional economic regions (see figure 6-2) identified in chapter 6. Therefore, figures related to employment and economics identified in this chapter vary from that presented in chapter 6. The eight irrigation service areas are based on the water supplies used for flow augmentation in this analysis and defined primarily by irrigation service areas. All of the economic data presented in this chapter is based on that presented in chapter 6 but adapted and extracted to the eight irrigation service areas presented in this chapter.

Three of the irrigation service areas are Reclamation service areas, i.e., the lands receive at least a portion of their water from storage space in Reclamation reservoirs and that water supply would be reduced by the flow augmentation scenarios. Most of the lands in the Reclamation service areas also have natural flow water



## Snake River Basin Irrigation - Potential Impact Areas

rights, which would not be affected by the flow augmentation scenarios. Five of the irrigation service areas are identified as natural flow right service areas indicating that all of the water rights used for irrigation are for diversion of natural flows. In these areas, a specific acreage of irrigated agriculture would be curtailed, and flows normally diverted to irrigate those lands would remain instream to provide a flow augmentation supply.

The reader is directed to the frontispiece map for geographic detail and to figures 6-1 for county designations used in the following descriptions.

Attachment I at the end of this report lists all of the communities in each of the eight irrigation service areas and provides information on the 1996 population, population growth, and economic diversity index. The definition of economic diversity and the general meaning to small communities is discussed. The economic diversity index is a summative index based on the diversity of industries within a community. Communities with only one industry (such as agriculture or timber resources) are inordinately affected by swings in the economic/market cycle, in that residents have few opportunities for alternative employment. Communities with several industries can tolerate economic swings with fewer adverse effects. Economic diversity scores in the range of -10 to +10 have been developed for Snake River basin communities. Higher positive scores represent greater economic diversity; -10 indicates a community that is totally dependent on agriculture.

### **8.3.1.1 Western Wyoming Irrigation Service Area**

This natural flow irrigation service area consists of 90,000 acres along the upper Snake River in Lincoln and Teton Counties, Wyoming, extending from Moose Valley, Hoback Junction, Wyoming, on the Snake River (33,700 acres irrigated), and Freedom, Thayne, Grover, and Smoot in the Salt River Valley on the Idaho-Wyoming border (56,300 acres irrigated) (see figure 6-13). This natural flow service area constitutes about 15 percent of the farmland and 85 percent of the irrigated land in the two counties. The area is primarily a ranching based economy.

The two-county population is 27,500, and growing about 2 percent per year during this decade. The largest employment sector is Federal, State, county, and city government; USFS and National Park Service (Teton National Park and Yellowstone National Park) facilities are located in the area. Commerce within the region revolves around tourism, recreation, forest products, and agriculture (predominantly ranching), creating moderate levels of employment diversity. Economic diversity scores were developed only for Afton (-0.41) and Alpine (2.57)

A total of 613 farms exist within the two counties, farming 621,000 acres, and producing about \$34 million for the regional economy. Approximately 470 farms with 106,000 acres total are irrigated in the counties; some acreage is irrigated from groundwater. Most of the farms are long established family operations, with 60 percent of the operators having farmed for 10 years or more. Over 37 percent of the farmers are over 60 years of age, with only 11 percent under age 35. Approximately 8 percent of farms are operated by tenant farmers. About 245 Lincoln and Teton County farmers hire about 945 farm workers/year (not including family members), with a payroll of \$2 million.

### **8.3.1.2 Eastern Idaho Irrigation Service Area**

This Reclamation irrigation service area consists of 396,000 acres (computed from Minidoka Project acreage) serviced by 49 water districts, extending along the Snake River from Rigby to American Falls, Idaho. Currently, about 4,830,000 acre-feet are diverted for irrigation in an average year. The service area is located predominantly within Bingham, Bonneville, and Power Counties, with small portions

extending into Bannock and Jefferson Counties (see figure 6-13). The service area constitutes about 17 percent of the three-county area but about 70 percent of the irrigated acreage in the three-county area.

The population of the major three-county area is about 128,700 and has been growing at 2 percent per year during the 1990s. Twenty-six communities are located within the greater irrigation service area; 14 are under 1,000 in population, 4 are 1001-2500, and 8 communities are greater than 2,500 ranging up to 51,000 in size; the populations of 5 communities were not determined. Approximately 85 percent of the population lives in the four largest cities in the service area which are Idaho Falls, Blackfoot, Pocatello, and American Falls, Idaho. Seven small communities that are unincorporated serve primarily as residential areas for farm laborers.

Total employment in the five-county area is approximately 66,200 workers, and fairly diversified in employment when compared to other economic regions in the Pacific Northwest (economic diversification score is -0.67). The largest employment sectors in the region are Federal, State, county, and city government and education (about 14 percent). Idaho State University, the Idaho National Engineering and Environmental Laboratory (which employs some 10,000 workers), and food processing firms are located within the service area. Farm employment is about 3,400 workers (5 percent of total). Commerce within the region revolves around intensive agriculture, predominantly row crops (potatoes), grains, forage, and livestock. Food processing firms import about 20 percent of their production from neighboring regions, supporting additional workers.

There are approximately 2,349 farms within the three-county region, farming 2,260,000 acres. About 1,871 farms irrigate 564,000 acres within the counties. The average size irrigated farm is 305 acres. Irrigated agriculture adds about \$409 million to the regional economy.

Over two-thirds of farmers in the region have farmed for 10 years or more, with 32 percent being more than 60 years of age. Only 12 percent of farmers are under age 35. Approximately 11 percent of farmers are tenant farmers. Over 1,195 farm operators hire over 9,800 employees (other than family members) in the three-county area, adding some \$35 million to the local economy.

### **8.3.1.3 Southern Idaho Irrigation Service Area “The Magic Valley”**

This Reclamation irrigation service area consists of 681,000 acres serviced by eight water districts, extending along the Snake River from Minidoka to Bliss, Idaho. In an average year, about 3,500,000 acre-feet are diverted for irrigation. The service area is located predominantly within Cassia, Gooding, Jerome, Lincoln, Minidoka, and Twin Falls Counties (see figure 6-13). The irrigation service area constitutes about 69 percent of irrigated acreage in the six-county area. The counties are aggregated to provide a profile of general characteristics.

Over 135,400 people live in the six-county area, which has been growing at the rate of 2 percent per year this decade. There are 42 communities located within the greater irrigation service area. Twenty-four of the communities are under 1,000 population, 4 between 1,001 and 2,500, and 9 cities over 2,500 (ranging up to 32,000 in population). Approximately 45 percent of the population live in the six largest cities in the service area, including Burley, Gooding, Heyburn, Rupert, Twin Falls, and, Shoshone, Idaho. Five communities within the service area are unincorporated, primarily serving as residential areas for farm laborers.

Total employment of the six-county areas is about 53,000 workers, with over 12,100 persons employed in agriculture (23 percent). The area is fairly diversified in employment when compared to other economic regions in the Pacific Northwest (economic diversification score is -0.05). This region employs a comparatively large number of Hispanics in the food processing industry, which dominates commerce in

the region. Government and public education workers constitute about 18 percent of the workforce. Twin Falls Community College, USFS, and BLM facilities are located in the area. Commerce within the region revolves around intensive agriculture, (potatoes, sugar beets, legumes, grains, forage) and dairy and livestock operations. Food processing firms import about 20 percent of their production from neighboring regions, supporting additional workers in the area. The natural springs in the area support a significant trout aquaculture industry, which is expanding.

There are over 4,800 farms within the six-county area, farming 1,930,000 acres. About 4,113 farms irrigate 986,500 acres within the counties, some from groundwater pumping or natural flow diversion. The average size irrigated farm is 240 acres. Agriculture adds about \$1 billion to the regional economy.

Over 57 percent of farmers in the region have farmed for 10 years or more, with 27 percent being more than 60 years of age. Only 13 percent of farmers are under age 35. Approximately 15 percent of farmers are tenant farmers. Over 2,300 farm operators hire over 16,000 employees (other than family members) in the six-county area, adding some \$80 million to the local economy.

#### **8.3.1.4 Southwest Idaho Irrigation Service Area**

This natural flow irrigation service area consists of a 200-mile reach of the Snake River, and two tributaries, between Twin Falls and Weiser, Idaho, constituting about 150,000 acres. Most of this irrigation service area is located in Twin Falls (16 percent), Elmore (30 percent), Owyhee (30 percent), and Canyon Counties (16 percent) in Idaho. Small portions of the service area extend into Ada and Washington Counties in Idaho and into Malheur County in Oregon. About 24 percent of the irrigated lands in the four main counties is within this natural flow service area. Most of the land in the service area is irrigated by high-lift pumping (a lift greater than 300 feet). The cost of water delivery for this service area is relatively high (due to high pumping costs per acre) compared to other service areas, thus farmers are particularly vulnerable to market conditions.

Elmore and Owyhee Counties, where 60 percent of the natural flow area is located, are characterized by sparsely populated rangeland and public lands, with irrigated farms concentrated along the Snake and Boise Rivers. Seven communities are located within the service area. About 32,700 people live in the two-county area, which has been growing at the rate of 2 percent per year this decade. Approximately 44 percent of the population lives in the five towns of Glens Ferry, Grandview, Homedale, Marsing, and Mountain Home, Idaho. The communities of the region are so widely dispersed that an economic diversity rating for the region was not developed.

Total employment of the two counties is 14,844 workers, with over 2,375 persons employed in agriculture. The largest employment sector in the south central Idaho region is Federal, State, county, and city government and education (42 percent). Mountain Home Air Force Base is the major employer for the region. Other commerce within the region revolves around intensive agriculture, (potatoes, sugar beets, legumes, grains, forage) and livestock operations. Agriculture adds about \$362 million to the regional economy.

There are 846 farms within the two-county area, farming 1,105,560 acres. About 670 farms irrigate 175,500 acres within the counties, with an average size of 260 acres. The predominant crops are grains, potatoes, legumes, sugar beets, forage crops, and livestock.



Over 55 percent of farmers in the region have farmed for 10 years or more, with 31 percent being 60 years or older in age. Only 9 percent of farmers are under age 35. Approximately 15 percent of farmers are tenant farmers. About 375 farm operators hire over 5,000 employees (other than family members) in the two counties, adding some \$20 million to the local economy.

### **8.3.1.5 Southwestern Idaho Irrigation Service Area “The Treasure Valley”**

This Southwestern Idaho irrigation service area (which includes some lands in eastern Oregon) consists of 515,000 acres serviced by 28 water districts, extending from Melba, Boise, Weiser, and Homedale, Idaho, and Adrian, Vale, and Ontario, Oregon. In an average year, about 3,100,000 acre-feet are diverted for irrigation. The service area is located predominantly within Ada, Canyon, Gem, Payette, and Owyhee Counties in Idaho, and a portion of Malheur County, Oregon. This service area comprises about 85 percent of the 663,000 irrigated acres in the six-county area. The water districts of the Owyhee Project (Owyhee, Gem, and Ridgeview Irrigation Districts and Owyhee Ditch Company) have contracts for the largest amount of storage space in the area -- 715,000 acre-feet. The next largest amount of reservoir space, 615,000 acre-feet, is controlled by the Boise Project Board of Control which is composed of five irrigation districts. Black Canyon and Emmet Irrigation Districts control 303,000 acre-feet of space.

Forty-two communities and cities are located within the greater irrigation service area; most populated is the Boise urban area. Fifteen communities are under 1,000 population, 6 are 1,001-2,500, and 13 cities are over 2,500 ranging up to 152,000 residents. Eight communities are unincorporated, mostly in rural Owyhee County. The six-county population is about 432,000, is urban in character and has been growing 18 percent per year this decade. Approximately 53 percent of the population live in the six largest cities in the service area, including Boise, Nampa, Caldwell, Payette, and Weiser, Idaho and Ontario, Oregon.

Total employment within the region is 239,000 workers. The area is well diversified in employment when compared to other economic regions in the Pacific Northwest (economic diversification score is 0.84), primarily a product of manufacturing and processing industries in the area. Federal, State, county, and city government and education constitutes about 13 percent of the workforce, while agriculture employment is about 5 percent. Caldwell is a center for Hispanic employment in the State, supporting the major food processing industry. The State Capital of Idaho, Boise State University and several major nationwide corporations are located in the region. The latter include Albertsons, Boise Cascade, Hewlett-Packard, Micron Electronics, Zilog Technology, Morrison Knudson, and others. Other major industries include major regional food processing firms and manufacturing, such as Amalgamated Sugar, Ore-Ida, and J.R. Simplot.

There are about 5,887 farms on 3,040,360 acres within the six-county region, producing some \$730 million for the regional economy. About 5,098 farms are irrigated, covering 633,560 acres. Commerce within the region revolves around intensive agriculture (orchards, potatoes, vegetable crops, sugar beets, legumes, grains, forage) and livestock operations. The average size of irrigated farms is 124 acres, which reflects the smaller more intensive orchard and vegetable crop operations in the area. Over 56 percent of the farms are operated by farmers who have farmed over 10 years; while 32 percent of farmers are over age 60, only 10 percent are under age 35. About 12 percent of farms are operated by tenant farmers.

Approximately 2,407 farms employ 28,000 workers, with a payroll of \$69 million. The local agriculture supports considerable secondary food processing manufacturing and the regional economy.

### **8.3.1.6 Northern Nevada Irrigation Service Area (Owyhee River Basin)**

This natural flow irrigation service area consists of 43,000 acres that receive natural flow diversions from the South Fork and the main stem (East Fork) Owyhee River on and adjacent to the Duck Valley Indian Reservation; 14,000 acres are located on the reservation. The service area is located within Elko County, Nevada, and extends northward into Owyhee County, Idaho and comprises about 48 percent of the irrigated land in Elko County.

Five small communities are located within the greater irrigation service area—Owyhee, Mountain City, Patsville, Wild Horse, and Riddle. The rural communities are stable in size, and primarily support local agriculture and the reservation. Alternative employment in the area is limited primarily to government and tourism sectors (fishing and hunting). The economic diversity of individual communities or the region as a whole was not estimated.

Approximately 360 farms exist within Elko County, providing some \$51 million to the regional economy and reservation. About 235 farms on 126,700 acres are irrigated from stream diversions and groundwater pumping, producing forage for cattle and sheep operations on the adjacent rangeland. The forage produced on these farms is critical to support livestock operations in the surrounding uplands, which would also be affected by a reduction in water supply to the service area.

### **8.3.1.7 Central Idaho Irrigation Service Area (Salmon River Basin)**

This natural flow irrigation service area consists of 127,000 acres in the Challis and Salmon, Idaho area. About 100,000 of those acres are along the main stem Salmon River and the remainder is along the Lemhi and Pahsimeroi Rivers. The area produces forage for support of cattle operations and is isolated geographically, with few cropping alternatives. The service area comprises all but a few thousand acres of the irrigated land in Custer and Lemhi Counties, Idaho, and also includes a few acres in Blaine County. This service area constitutes about 85 percent of the total irrigated acreage in the two counties.

Four communities are located within the greater irrigation service area—Baker, Carmen, Challis, and Salmon. The two-county population is 12,289 and growing about 3 percent per year this decade. The largest city in the area is Salmon with 3,270 residents.

The local economy is based upon agriculture and forestry (1,088 workers) and Federal, State, and county government (1,300 employees), and tourism. The economic diversity score for the region is 1.77, which reflects the alternative employment of the timber products sector. USFS and BLM facilities are located here; 93 percent of the land is forest and rangeland. Total employment for the two-county region is approximately 6,000 workers.

Approximately 600 farms operate on 334,600 acres within the two counties, producing over \$33 million for the regional economy. Only 4 percent of the land area is usable for farming, producing grain, forage, and some potatoes. Some 508 of the 600 farms in the counties are irrigated, watering 129,000 acres. The average size of irrigated farms is 254 acres. The forage produced supports the livestock operations in the surrounding rangeland.

Over 60 percent of the farm operators have farmed for 10 years or more. About 36 percent of the farm operator are over 60 years age, and only 6 percent are under age 35. Approximately 10 percent of the operators are tenant farmers. Some 225 farm operators hire about 720 workers, adding a payroll of \$2,760,000 to the local economy.

### **8.3.1.8 Grande Ronde Irrigation Service Area**

This natural flow irrigation service area consists of 102,000 acres irrigated from natural flow diversions, extending from La Grande and Union, Oregon on the Grande Ronde River and Joseph to Minan, Oregon on the Wallowa River. The service area is located within Union and Wallowa, Counties, Oregon.

Fourteen communities are located within the greater irrigation service area. The two-county population is 31,750 but the population has fluctuated sharply in recent years, primarily affected by market trends in the forest products industry. Within the past 5 years, annual population growth has been about 2 percent per year. The largest city is LaGrande, with about 13,000 residents.

Total employment within Union and Wallowa counties is 13,900 workers. The largest employment sector is in Federal, State, county, and city government and education (about 47 percent). The agriculture sector constitutes 15 percent of total county employment (2,070 workers). Eastern Oregon University and the Umatilla and Wallowa Whitman National Forests are located in the area. Boise Cascade Company and several small manufacturers and agricultural processing firms service the area.

About 1,210 farms on 1,167,620 acres operate within the two counties, producing over \$75 million for the regional economy. Commerce within the region revolves around intensive agriculture (legumes, grains, mint, and forage) in the LaGrande area and livestock operations in the Wallowa area. The economic diversity score for the region is +1.35, which reflects the presence of the timber products sector.

There are 619 farms irrigating 94,257 acres in the counties, with an average size of 152 acres. About 10 percent of the farms are operated by tenant farmers. About 34 percent of farmers are over age 60, and only 7 percent are under age 35. Some 420 farms employ over 2,000 workers in the counties, with a payroll of over \$5 million.

### **8.3.2 Environmental Consequences**

The impacts of the No Augmentation Scenario were not evaluated as the potential impacts are considered to be not measurably different from the Base Case.

The effects of the 1427i and 1427r scenarios on communities and individuals would be complex, varying according to the particular characteristics of individual farmers and communities. In many ways this action would be an experiment in itself, as there are no examples of this geographic scale or magnitude of water transfer ever having occurred in the United States. There have been some examples of smaller scale water transfers and programs. The 1427i and 1427r scenarios would have distinct impacts on the vitality and stability of rural communities and these impacts would result as much from the individual characteristics of the communities themselves as the specific changes in water use and recreation. Communities vary in their resilience to economic and social change, depending upon the nature and qualities of the employment base, the human capital and organizational capacity to make necessary changes in their communities, and the process through which the scenarios are implemented (timing, economic reallocation, mitigation, and institutional facilitation).

Communities whose economic livelihood is based on a single employment sector are sometimes known as 'high risk' communities (see attachment I). One standard defined in the literature specifies high risk communities with more than 20 percent of the population employed in a single economic employment sector, such as agriculture, forest products, or a single manufacturing firm. Communities with few employment sectors have limited occupational alternatives to which people can shift when economic conditions dictate change. Communities that are small, isolated, lack economic diversity, are dependent upon natural resources, and that have low leadership capacity are more likely to be "most at risk."

The two kinds of irrigation service areas, Reclamation and natural flow, would likely be affected quite differently by the flow augmentation scenarios. To more efficiently collect information on potential effects on the large number of irrigation service areas, a case study was developed for one Reclamation irrigation service area (Southern Idaho) and one natural flow service area (Grande Ronde). This information was then used as the basis for effects common to other irrigation service areas of the same kind. Additional information was then developed to identify effects that would be unique to specific irrigation service areas.

To collect information, a limited number of knowledgeable people in the two case study areas were contacted to identify and assess the impacts of the sale of water rights and the corresponding changes that would occur in rural communities. In addition, a few knowledgeable people in all other service areas were contacted to help identify conditions unique to specific areas. Irrigation district managers and board members, County Extension agents, Natural Resources Conservation Service staff, and others were selected and contacted by telephone during November, 1998.

Reclamation irrigation service areas would be affected to different degrees by the 1427i and 1427r because of the amount of water acquired and the operation of the reservoirs would be different for the two scenarios (see chapters 4 and 6). In contrast, the effects on the natural flow areas would be the same under either the 1427i or 1427r scenario because irrigation would be curtailed on the same amount of acreage under each scenario. As a result, the discussion of effects on irrigation service areas compares or contrasts the two scenarios in discussions of the Reclamation irrigation service areas but does not do so for the natural flow irrigation service areas.

A key factor in how farmers, ranchers, and other water users would respond to a flow augmentation program is the purchase of water rights. Potential implementation issues and water purchase plans remain at a conceptual level (see chapter 9). Assuming that a water purchase plan were implemented, many water users would like to see a program that would still allow the seller to irrigate some lands. These ideas include selling water rights that are not used, selling floodwater rights (available only during the highflow period in the spring), and selling natural flow or storage water rights and then developing wells to continue irrigating. Others would like to sell their water rights and then subdivide their land for residential and business use.

None of the above actions would be acceptable for purchase of water rights for flow augmentation, particularly for dry years. Rights not being used, with rare exception, would not be eligible for sale because the question of forfeiture for non-use would likely arise during any transfer proceeding. Flood rights are not reliable and would not be good candidates for flow augmentation purchase. Replacement of surface water rights with pumping groundwater for irrigation would not be viable candidates for flow augmentation purchase because of interactions between surface water and groundwater. In some areas the additional groundwater pumping would unacceptably impact other domestic wells and irrigation water supplies. Subdivided land would likely use municipal water supplies, most often groundwater, and require as much water as cropped land. In any purchase for flow augmentation, the net effect of groundwater and surface water outflow at Lower Granite Lake would be a key analysis parameter.

A viable program for water acquisition of natural flow rights must require that the lands from which the water is acquired remain dry (not irrigated) for the duration of the water acquisition. Irrigation of the lands with alternative water sources would not reduce total consumptive use, defeating the purpose of water acquisition. In contrast, acquisitions of storage space would not necessitate that lands be left dry, but would require that the total the water supply available to irrigation be reduced by the amount of water acquisition. This could be accomplished by decreasing the total irrigated acreage (some lands left dry), switching to less water intensive crops, or taking the risk of an inadequate water during drought years.

This discussion of effects on irrigation service areas is separated into two parts (1) Reclamation irrigation service areas and (2) natural flow irrigation service areas. Each part provides (1) an overview of effects likely to be felt by all irrigation service areas within the category (Reclamation or natural flow), and (2) a discussion of effect specific to each irrigation service area within the category. A final part of the irrigation service area effects is a compilation of perceived attitudes and opinions toward the flow augmentation scenarios.

### **8.3.2.1 Reclamation Irrigation Service Areas**

There are three Reclamation irrigation service areas: Eastern Idaho, Southern Idaho, and Southwestern Idaho. Of these, Eastern Idaho would experience only minor impacts under the 1427i and 1427r scenarios. The other two service areas would experience impacts primarily associated with loss of insurance water (water needed during drought years) under the 1427i scenario. The 1427r scenario would lead to significant impacts in the Southern Idaho and Southwestern Idaho service areas, with the Southern Idaho area experiencing the greatest impacts.

#### **8.3.2.1.1 Impacts Across Reclamation Irrigation Service Areas**

Findings regarding the Reclamation Service areas, based on the hydrologic studies, economic studies, and discussions with key individuals, include the following:

- Boards of directors, not individuals, make decisions regarding water sales, and they are not inclined to provide any more water for instream flows.
- Program implementation may be difficult due to the following attitudes and beliefs held by irrigators:
  - Water should not be permanently separated from the land.
  - Additional flows would not help the salmon.
  - The Federal Government, Indian tribes, and environmentalists are unlikely to be satisfied with any specific flow augmentation.
- Many of the farms in well established irrigation areas are owned and operated by multi-generation farming families. These families tend to have strong ties to the land and the community and would likely be unwilling to take any action, such as selling water supplies, that would endanger their present lifestyle.
- Social costs of the program would likely exceed current estimates, especially if a flow augmentation program is implemented over a short time period.
- The total amount of the purchased water would not likely show up in the Snake River (due to theft, evaporation, miscalculations, errors in diversions, etc.).

- The majority of employment impacts would be felt by farm laborers and local agri-businesses. In southern Idaho, a typical 500-acre farm in southern Idaho employs two hired men. Agriculture-related businesses such as suppliers, processors, and others in a specific region would employ about as many laborers as the region farmers. The people most likely to be affected would be low-income, temporary workers, with few alternative employment opportunities. Impacts would likely be greatest in isolated communities.
- The 1427r scenario would have much more negative impacts than the 1427i scenario.
- Impacts of the 1427i and 1427r scenarios could be severe during an extended period of drought.
- The Southern Idaho irrigation service area would be the most heavily impacted Reclamation irrigation service area under both scenarios, followed by the Southwestern Idaho irrigation service area.
- Under the 1427i scenario:
  - Much of the acquired water might come from irrigators who have “insurance water” that protects them against shortages during dry years. These dry years occur infrequently, on an average of 1 in 7 years, but they can be costly when they occur in successive years. In average years, around 1 percent or less of lands would be taken out of production, but in dry years, about 5 percent would be taken out of production.
  - Depending on the water acquisition program and how districts and irrigators would choose to spread risks and costs, all of the irrigation water supply for some individuals might be removed and the irrigation curtailed on those lands
  - Lands in production and average year cropping patterns would remain about the same.
  - During extended drought periods, more jobs, businesses, and farms would be lost.
  - During periods of drought, farmers would shift to less water-intensive crops and more lands would be taken out of production.
  - Demographic effects would not be significant unless there was an extended period of drought.
  - Tax impacts on rural communities would be relatively minor.
  - Quality of life would remain mostly unchanged unless an extended period of drought were experienced.
- Under the 1427r scenario:
  - The insurance water now relied on for protection against drought years would be acquired for flow augmentation, and water delivery to more lands would be permanently curtailed. In some areas with good natural flow rights farmers might continue farming by converting to crops that do not need late season water, e.g., grains and grass for pasture, and cutting hay only once in good years. In some areas natural precipitation and natural flow rights are insufficient to support grain crops.
  - A significant amount of lands would permanently be taken out of production. As much as 13 percent of irrigation service area lands would be taken out of production in average years, and as much as 24 percent of lands would be taken out in dry years in local areas.
  - Some lands would be abandoned and some farmers would likely leave the area.
  - Agricultural businesses would decline, and some would go out of business. The decline in agriculture would spread to the rest of the rural economy.
  - There would be a significant effect on demographics. In some areas, much of the farm labor population would move away. Opportunities for younger members of farm families would be

- reduced, and many of them would migrate from the area. Many mid-sized farmers, perceived by some to be the heart of the agricultural community, may sell out and leave. Young farmers would leave the area for other employment, taking their young families with them. Older farmers would tend to retire earlier and more would tend to retire out of the area.
- Impacts on taxes and service would be significant and costs of services, e.g., Aid to Families with Dependent Children, unemployment compensation, and health and police departments would go up.
  - Many rural communities would become less viable with reductions in population, tax base, services, and infrastructure, but most small communities would survive with a reduced economic base and population.
  - The character of many communities and rural areas would be changed.
  - Quality of life would significantly degrade in many areas.
  - Social conflict among farmers would increase, especially during the transition period while the program was being implemented.
  - Lifestyles for some would change, some would no longer be farmers, some would be forced to abandon a rural life style.

#### **8.3.2.1.2 Eastern Idaho Irrigation Service Area**

Under the 1427i scenario, the Eastern Idaho irrigation service area, in average years, would receive about 20,000 acre-feet less than under the Base Case. About 2,000 acres would be taken out of production in an average year and 9,000 acres would be taken out of production in a dry year.

Under the 1427r scenario, the Eastern Idaho irrigation service area in average years would receive somewhat less water than the Base Case. About 1,000 acres would be taken out of production in an average year and 11,000 acres would be out of production in a dry year.

The overall effect of the 1427i and 1427r scenarios would be negligible on income with most of the effect in the livestock and crop production sectors. Income from crop production for the region would decrease 2-4 percent.

Individuals may be interested in participating in a water purchase program. Some individuals would sell part of their acreage to developers and use the proceeds to restore the viability of their farming operations. Some individuals who are at risk of forced liquidation because they can't service their debt may get out of the farming business while they can still protect their equity. Small ditch companies serving a few farms might consider selling. All of these individuals might consider selling water rights for the same reasons that they sell land.

Many irrigators in the Eastern Idaho service area have more senior natural flow rights than irrigators downstream. Therefore many could sell all or part of their storage supplies and continue to irrigate with privately held water rights and grow less water-intensive crops. Some of the lands in the foothills could be satisfactorily dry farmed without any irrigation—mostly wheat with summer fallow. Some lands could be placed into the CRP program. Many individuals today can make as much putting land into the CRP program, given today's depressed prices, as they can make by continuing to farm it.

Most young people who have left farming in recent years have remained in the area and work in agribusiness such as grain companies, potato processing plants, etc. Those who leave farming through retirement also tend to stay in the area. Some farmers whose water right was acquired would retain part of the farmstead to live on, while others would move to town. Some older people would lease their land and live off the equity.

Downturns in agriculture are buffered somewhat in eastern Idaho by a diversification in the economy that includes large food products processing firms, the Idaho National Engineering and Environmental Laboratory west of Idaho Falls, and a large mining industry. However, many of the communities such as Aberdeen and Springfield are highly dependent on agriculture and would experience greater proportional impacts from water sales in that area.

Unlike the other Reclamation service areas, the Eastern Idaho area is made up of a few large water districts and many small ones. Although the impacts of the scenarios on the service area as a whole are fairly small, impacts might tend to be concentrated if the water acquisition program were focused on a few small areas. This could have a significant negative effect selected farmers.

There are a number of small ditch companies in the Eastern Idaho service area. Unlike irrigation districts, an individual selling out of a ditch company is usually not responsible for continuing to pay operation and maintenance costs. This would often put a burden on the remaining members of the organization.

#### **8.3.2.1.3 Southern Idaho Irrigation Service Area**

In an average year, the Southern Idaho irrigation service area would receive, compared to the Base Case, about 50,000 acre-feet less under the 1427i scenario and about 440,000 acre-feet less under the 1427r scenario.

Under the 1427i scenario, 8,000 acres would be taken out of production in an average year and 74,000 acres would be taken out of production in an extremely dry year. Under the 1427r scenario, a significantly greater acreage would be taken out of production, 88,000 acres in an average year and 290,000 acres in a dry year. Most of this land would be used for dryland grazing, but some would be abandoned.

The economy of the Southern Idaho service area is about 65 percent dependent on agricultural production, the highest proportion in the state. Water users are concerned that under the 1427i scenario some agricultural processors might withdraw from the area due to loss of irrigated land to sustain a reliable crop rotation and increased uncertainty. They believe that fewer potatoes would be produced in the area. Potato growers have talked about buying a processing plant, and they might do so to avoid some adverse impacts. Losses in processing and potato production would impact equipment and other agricultural services.

The 1427i scenario would have major negative effects on the economy. Impacts would pervade the entire area, but might be most concentrated near small agricultural communities with tight budgets. Counties and communities could handle 10 percent impacts given enough time to absorb impacts on schools, fire departments, etc. However, the 1427r scenario would produce much more severe impacts during average years and impacts would be even worse during periods of extended drought.



Of the districts in the area, only the Minidoka Irrigation District and the Burley Irrigation District (BID) have large supplies of insurance water. In an average year, they could give up 200,000 acre-feet and still have an adequate supply. Minidoka Irrigation District might willingly sell some water. BID put some water into the rental pool in 1991 and ran out of water in 1992. Due largely to significant frustrations of BID patrons as a result of that experience, BID has not rented water since 1991 and would not likely be willing to sell water.

A few districts, or parts of districts, in the Southern Idaho irrigation service area have fairly good natural flow rights; most do not. With acquisition of storage water for flow augmentation, some individuals with better natural flow rights would continue to farm, using their water on less intensive crops such as grains. Many individuals with junior rights might be able to grow nothing more than grass pasture. Some would try winter wheat, but it's unlikely that it would be profitable with so little moisture.

Communities like Gooding, Hazelton, Kimberly, and Jerome that have been built around service to agriculture and have little diversification would be more heavily impacted under the 1427r scenario. Smaller, less diversified communities such as Acequia and Declo could receive even greater impacts.

#### **8.3.2.1.4 Southwestern Idaho**

In an average year, this service area would receive about 50,000 acre-feet less under the 1427i scenario and about 260,000 acre-feet less under the 1427r scenario compared to the Base Case.

Under the 1427i scenario, 9,000 acres would be taken out of production in an average year, and 52,000 acres would be taken out of production in an extremely dry year. Under the 1427r scenario, 49,000 acres would be lost in an average year and 111,000 acres would be taken out of production in a dry year.

Most of the land taken out of production under the 1427i and 1427r scenarios would be planted to grass and pastured where possible, but some land would be abandoned. Rural property away from urban growth areas would have little remaining value without water. A few acres on the fringe of the irrigation service area, e.g., north of Middleton and Notus, have been abandoned in recent years and reverted back to desert. Other fringe lands could be abandoned under the 1427r scenario as some areas are too sandy and too dry to grow even mountain grasses if storage water were removed.

Because of agriculture's much smaller contribution to the economy of the Southwestern Idaho, compared to the rest of the state, the overall impacts of even the 1427r scenario would not be great. However, the more rural areas and counties would be impacted under the 1427r scenario.

Southwestern Idaho is a rapidly growing, rapidly urbanizing area. Individuals living close to city limits are likely candidates to sell their water, especially those living on smaller parcels and those nearing retirement.

Farmers with marginal land would be candidates for water sales. For example, there are as many as 25,000 acres of marginal lands across the Owyhee, Ridgeview, and Gem Irrigation Districts. Some of this land is farmed by people who make their primary living in town and work their land as a hobby.

One district official reported that his district would permit individuals to sell their water rights so long as the district operation and maintenance fees on their lands and any additional district costs resulting from the sale were covered. Some districts, such as the Nampa-Meridian which runs through the heart of the Boise Valley urban area, allow people to buy out of the district if there is no way to get water to their property. The districts are now supplying closed-pipe system water to subdivisions to avoid buy-outs.

Some semi-retired people might leave the area. In many areas people are working in town and living in the country, and they would continue to do so with or without their water.

Many rural communities that are near rapidly urbanizing areas might change in character as a result of the 1427r scenario, but would likely stay viable. Some of the less diversified communities such as Greenleaf, Notus, and Parma might have significant problems if water shortages were concentrated in their area.

Farmers in several areas would likely experience a variety of water problems under the 1427r scenario. For example, removing irrigation water from lands would reduce aquifer recharge and reduce return flows in some areas. In recent drought years, individuals in some areas have had to drill new domestic wells. Reduced irrigation would lead to similar effects. Downstream users tend to have more water than upstream users during drought years due to irrigation returnflows. That would happen less frequently with greatly reduced water applications under the 1427r scenario.

Rural/urban conflicts would be greater, especially under the 1427r scenario with farmland likely being subdivided at a greater pace unless provisions in water acquisitions stipulated that the use of M&I water on those lands would not be allowed.

### **8.3.2.2 Natural Flow Irrigation Service Areas**

There are five natural flow service areas: Western Wyoming, Southwest Idaho, Northern Nevada, Central Idaho, and Grande Ronde. Natural flow irrigation water users gravity divert and/or pump their own water supply from the natural flows of the river. Western Wyoming, Northern Nevada, and Central Idaho areas are relatively isolated ranching areas. The Grande Ronde area contains one valley that is primarily ranching and one valley is row cropped. The Southwest Idaho natural flow area is predominantly a high-lift pump area that has high-value crops. These natural flow irrigation service areas contain a large number of individual farm operators that operate independently. The operators hold their own water rights, which are attached to the land. Some farms may be owned by corporations, but the majority are family farming units. All of these areas would be heavily impacted by the scenarios with land taken out of production ranging from 25-56 percent of the irrigated acreage.

There would be no difference between of the 1427i and 1427r scenarios in the natural flow areas. Water rights would be purchased on a voluntary basis and the water would be committed to flow augmentation in support of salmon migration in the lower Snake River system. All the water would be removed from 221,500 acres within the Snake River basin. This would require a major reorganization of agriculture in twelve counties. Program implementation would require changes in state law in Idaho and Nevada which do not currently allow the transfer of water from irrigation to instream flows.

#### 8.3.2.2.1 Impacts Across Natural Flow Irrigation Service Areas

Many of the conclusions with regard to the Reclamation irrigation service areas also apply to the natural flow irrigation service areas but are repeated here for clarity. The conclusion for natural flow irrigation service areas, based on the hydrologic studies, economic studies, and discussions with key individuals, include:

- Program implementation would be difficult due to the following attitudes and beliefs held by irrigators:
  - Water should not be permanently separated from the land.
  - Additional flows would not help the salmon.
  - The Federal Government, Indian tribes, and environmentalists are unlikely to be satisfied with any specific flow augmentation.
- Many of the farms in well established irrigation areas are owned and operated by multi-generation farming families. These families tend to have strong ties to the land and the community and would likely be unwilling to take any action, such as selling water supplies, that would endanger their present lifestyle.
- The total amount of purchased water would not show up in the Snake River, unless there is aggressive water rights enforcement.
- All the identified natural flow irrigation service areas would be significantly impacted.
- Reduced irrigation production on 25-50 percent of the lands of the service areas would adversely affect the economic base of those areas.
- Lands with curtailed irrigation would likely result in the following:
  - Cattle ranching lands in fairly wet areas would likely be leased or purchased by neighbors who would continue cattle operations on those lands which would support lower numbers of cattle.
  - Crop lands in fairly wet areas would likely be dry farmed, while crop lands in dry areas would likely revert to native vegetation which would support limited grazing.
- Some sellers of water rights might take town jobs or leave the community, while some of the long-term residents would likely stay on the land or in the community.
- Social costs (all of the negative effects to communities, families, and individuals) of the program would likely exceed current estimates, especially if a flow augmentation program is implemented over a short time period.
- A significant share of funds from the sale of water rights would probably not stay in the area. Farmers and ranchers would probably use funds to first service debts. Those sellers that left the community would take the funds with them.
- Suppliers, processors, and virtually all agricultural businesses would be negatively impacted with some agri-businesses closing. The downturn in the agricultural sector would flow to other economic sectors. Hardest hit would be small businesses in remote areas.
- A significant number of jobs (3-6 percent) in local areas, as opposed to larger regions, would be lost. The majority of employment impacts would be felt by farm laborers and local agri-

businesses. The hardest hit would be farm and ranch workers, including many seasonal employees, and teenagers who would normally help out in farming and ranching operations. Job losses could range from 20-50 percent of the farm work force in isolated areas. Cutbacks in agriculture would impact local retailers and other non-agricultural businesses. The most impacted people are likely to be low-income, temporary workers, with few alternative employment opportunities.

- Demographic impacts would vary, but most areas would lose some population. Opportunities for younger members of farm families would be reduced and many of these young people would move out of the area. Older farmers would tend to retire earlier and more would tend to retire out of the area. Much of the farm labor population would move from the area.
- Many rural communities would become less viable due to reductions in the population base, the tax base, services, and the infrastructure.
- Tax impacts of large scale reduction of irrigated agriculture would be significant. Services such as schools, hospitals, nursing homes, police and fire protection would be reduced, but the demands and costs for some services such as Aid to Families with Dependent Children, unemployment compensation, health services, and police protection would increase.
- Conflict among water users would increase, especially during the transition period while the program was being implemented.
- The quality and character of rural life in all service areas would be irreversibly changed. Lesser educated and older residents would be most affected.
- Family stability, security, and functionality would change with extended families dispersing and younger members unable to farm or remain in the area due reduced employment opportunities.
- Lifestyle would change for many individuals.

#### **8.3.2.2.2 Western Wyoming Irrigation Service Area**

Under the flow augmentation scenarios, water rights would be removed from 30,000 acres, about one third of the service area.

It's unlikely that much water would be sold in Teton County. Much of the land is held by prosperous families who intend to either keep their land as working ranches or protect the land as unsubdivided open space. The aesthetics of the Jackson area would be negatively impacted if water were taken off these lands and they no longer operated as working ranches. The most likely purchasable water rights would be the few working ranches near Alpine and the owners of the dairy and cattle operations along the Salt River (Star Valley). Much of this area is comprised of third and fourth generation families (Heritage Farms) who tend to have very strong feelings about keeping land and water together and would be very unlikely to sell to the Federal government.

Most of the curtailed irrigation acreage would be located in Lincoln County in Star Valley and most of that valley has been converted to sprinklers in recent years, increasing infrastructure investment and debt loads. There is considerable subdivision pressure in the area because of the attraction of the city of Jackson and the national parks. The prospects for subdividing the land would significantly raise the cost of the appurtenant water rights. Some of the dairy operations in that valley might continue and survive by importing feed. Other lands would be bought or leased by neighbors to provide feed for cattle.

Because of strong family ties, some sellers would retire and stay in the area. Younger people who didn't try to stay on dairy farms would likely move due to lack of opportunities. A few individuals would stay and help work lands that were acquired or leased by neighboring operations.

The local economic impacts associated with removing production on up to 50 percent of the irrigated lands in Lincoln County would be significant. Suppliers, processors, and other agricultural businesses in neighboring counties would be negatively impacted.

Out of a base of 12,000 jobs, 200-300 jobs would be lost. The hardest hit would be farm workers (presently about 900 workers), including many seasonal employees, and teenagers who would normally help out in farming and ranching operations. Much of the job loss would be concentrated in the sparsely-populated Star Valley area.

Removing the water rights from the land and taking that land out of irrigated agricultural production would greatly reduce Lincoln County's tax base. The few acres losing water in Teton County would have little impact on that county's economic base.

Star Valley would likely lose population, unless some of the agricultural loss could be made up through gains in recreation subdivisions and by other means. There would be fewer opportunities for young people (especially in family agricultural enterprises), and more young people would leave. Some older residents would likely leave the area earlier than they might otherwise have done.

#### **8.3.2.2.3 Southwest Idaho Irrigation Service Area**

Water rights would be removed from 68,000 acres, about 45 percent of the Southwest Idaho natural flow service area.

The majority of the area is in family farms, but there are significant corporate interests as well. Development of these lands started in the 1950's when both power and land were cheap, and farmers started developing desert lands in the area. Most of this development involved high lifts of around 300 feet out of the Snake River. Power rates have become more expensive and commodity prices are currently quite low. When the land was first opened up, the virgin soil was an outstanding medium for growing potatoes and tremendous yields were realized in the early years. Now, production and crop values have declined, and increasingly, other less-profitable crops must be planted in a crop rotation pattern. Some of the smaller farmers with operations averaging 300-400 acres are having the most difficulty and might be among the first to sell.

The farms in this area are among the best candidates for a water purchase program. Much of the land would likely go back to desert, some of it sustaining limited spring and fall cattle and sheep grazing. Weeds would almost certainly be a problem on much of the dry land, exacerbating an already major problem with weed infestation in the area.

Most of the present owners would likely move off the land, some choosing to leave farming while others (including corporations) would set up farming operations elsewhere. This irrigation service area is the largest potato growing area in southwest Idaho and is also a major producer of sugar beets. Reducing the irrigated acreage by one-half with an accompanying reduction in crop production would be felt throughout the irrigation service area. Suppliers, processors, and virtually all agricultural businesses would be negatively impacted.

The economies of Owyhee and Elmore counties would be significantly impacted. These are sparsely populated rural counties with agriculture making up a large amount of the economic base. More than 70 percent of Elmore County's agricultural production comes from the farms in this service area.

Job losses would range from 600 to 1,200 jobs; farm workers would suffer the greatest losses. Many of these would be permanent workers living on farms and in nearby communities and many are Hispanic. Much of the job loss would hit the small rural communities the hardest, making it hard for many businesses to survive.

Dramatically reducing the value of 68,000 acres of irrigated agricultural land by removing the water would create a considerable decrease in assessed valuations. The majority of that loss in revenues would be felt in Elmore and Owyhee counties, the two most rural and sparsely populated counties in the service area. This would likely result in a noticeable increase in taxes and fees to county residents as well as a reduction in services.

Population numbers would decline dramatically in some areas. Once the water was taken off much of the land, there would be little to keep people in the area. Much of the economic and social cost would be born by the Hispanic community. The communities of Bruneau and Grandview, among the poorest in the state, and Glenns Ferry would be hard hit because irrigated agriculture along the Snake River forms a large part of their economic base. These communities have been declining in population in recent years. Many of the farm laborers who would lose their jobs live in these communities. Recent efforts to restore these communities would be set back. The loss of jobs, and population would put pressure on schools, churches, and other community institutions. Most of the other communities in the service area are close enough to land irrigated from other sources that they might not be as greatly impacted.

#### **8.3.2.2.4 Northern Nevada Irrigation Service Area**

It is assumed that most, if not all, of the water rights purchased (from 14,000 acres) would be from lands in the South Fork of the Owyhee River.

There is some non-tribal land on the East Fork above Wildhorse Reservoir, but most of the non-Indian land is on the South Fork which is a very isolated area. Most of the land in the Independence Valley headwaters is held by about a half-dozen families who have been in the area since the turn of the century. Below Independence Valley, most of the land is in large holdings operated by a few corporations. Recently, mining companies have bought several ranches in Elko County and use part of the water rights for milling operations while continuing to irrigate most of the land and continuing ranching operations. Larger landowners might consider selling water from a wetland portion or areas that are sub-irrigated. If the assumptions of the flow augmentation scenarios are to be realized, virtually everyone in the area would have to sell their water rights.

After curtailment of irrigation, lands above the floodplain would transition back to native conditions with shrub overstory and bunch grass understory within 3-4 years. These lands would provide some limited grazing potential. Some lower lands would produce one cutting of hay and some fall pasture. Production would be uneven since this area is subject to long periods of drought that can extend for periods of 6-8 years. Forage production would be expected to drop by as much as 90 percent on lands from which irrigation water was removed. Most of the lands from which water was removed would likely be used for dry land grazing.

Individuals or corporations who sell only a portion of their water right would likely stay in the area. If families sold their entire water right, they would likely move out of the area. Corporations selling their

entire water rights would likely develop similar operations elsewhere. Their lands would most likely be leased or sold to the remaining large ranches or corporations.

Many of the sellers would probably leave the area, taking most of their proceeds from the water sales with them. Only a portion of the proceeds received by those who stayed would remain in the local economy. Between 100 and 300 jobs would be lost. The hardest hit would be agricultural workers, including many seasonal employees.

Virtually all of the trade in the area is centered in Elko, and that's where most of the local impacts to agricultural and other businesses would occur. However, Elko is large enough and sufficiently diversified that it would not be greatly impacted. There would be some impact on Elko County's tax base as a result of removing about 16 percent of the county's irrigated acres, but the effects would not be of a great enough magnitude to significantly impact services.

Some agri-business impacts would be experienced in the Twin Falls and Boise areas in Idaho.

With the loss of 40 percent or more of the production from the lands, many of the South Fork residents would likely leave. Most of those remaining would be tied to the few large cattle operations left behind. There would most likely be a shift from family ranches to larger entities.

The largest town in the natural flow irrigation service area is Tuscarora which is not much more than a post office.

Several of the multi-generation ranching families in the service area would move, breaking ties. Lifestyles would change for some individuals. Some would no longer be farmers, and others would be forced to move to urban areas to find employment, abandoning at least some elements of a rural lifestyle.

#### **8.3.2.2.5 Central Idaho Irrigation Service Area**

Under the 1427i and 1427r scenarios, water rights would be removed from 71,500 acres, about 56 percent of the irrigation service area. The most likely sellers would be older people who are retiring and widows or others who inherit ranches and have no family members interested in taking over. Owners whose ranches aren't making enough money (usually the smaller ones) could also be candidates. Many of these ranches might be in the higher valleys of the Pahsimeroi and Lemhi Rivers.

Most of the land would revert to high desert and might be leased or purchased by neighboring ranchers and grazed, producing about 1 animal unit month per 7 acres. It's unlikely that much additional feed would be imported to support current livestock numbers. Livestock numbers would likely be reduced in proportion to the reduction in feed supply. Some parcels might be subdivided.

Younger ranchers who sold would likely leave the area and ranch somewhere else. Some older ranchers would leave, but others would retire and stay in the area. A few sellers may try to maintain their present operations by importing feed.

Beef cow/calf agriculture accounts for over 90 percent of gross agricultural income in the area. Of the available feed in the area, 71 percent is produced on private lands with over 90 percent on irrigated lands. Removing most of the production from these irrigated lands would lead to a reduction in beef cattle revenue of about \$13 million annually. Household earnings would drop about \$8 million annually, and employment would be reduced by 400 jobs out of a base of 6000. Much of this job loss would be to the present base of 720 agricultural workers. Most of the job loss would occur in Salmon (220 jobs). About 70 jobs would be lost in the Challis area, 40 in the Pahsimeroi, and 60 in the Tendoy-Leadore area. Two of the three farm supply businesses would likely go out of business, resulting in less competitive prices.

The next nearest trade centers, Missoula and Idaho Falls, are about 150 miles away. Salmon, the largest trade center in the area would see an earnings loss of 6 percent, a job loss of 10 percent, and a loss of 48 percent of the jobs in the farming sector.

If flow augmentation is realized, 70 percent or more of the water rights might be sold out of the less productive upper Lemhi and Pahsimeroi valleys. Taking that much production out of those areas could greatly impact the local communities. Much of the social life of the Pahsimeroi Valley is built around the little school at Patterson. That school would likely close. The one-room school at Tendoy would also likely close. All the businesses in Leadore would suffer major losses of clientele and a number of them would likely close. The entire landscape and character of these upper valley communities would change as ranches closed down, families left, and schools and businesses closed. The Salmon and Challis communities would suffer less impact because much of Challis' economic base is built around mining. Salmon is sufficiently large and diversified that even though it would suffer the greatest loss in employment and income, it would not be as greatly impacted as the smaller communities in the area.

The tax bases of Lemhi and Custer County would be decreased considerably with up to a 90 percent devaluation of over half of the irrigated land. This would put a greater burden on the remaining tax base and lead to the reduction of some services.

Many individuals would have a reduction in income or change in employment. Some would need to leave the area to find work. Many of those who stayed in the upper valleys would find themselves living in a different kind of community with fewer people, fewer services and weakened institutions.

#### **8.3.2.2.6 Grande Ronde Irrigation Service Area**

Water rights would be removed from 37,000 acres of the 102,000 acres in this natural flow irrigation service area.

There is an especially great deal of resistance to separating water from the land in this area. The first water rights to come on the market would likely be the ones that are not being used, followed by floodwater rights that are only good during the first part of the summer. Some individuals in the Grande Ronde Valley are interested in converting to wells and would consider selling their surface right if a conversion to groundwater were possible. None of these water rights would be acceptable for flow augmentation as discussed earlier in this section. Rights not being used, with rare exception, would not be eligible for sale because avoid the question of forfeiture for non-use would be difficult during a transfer proceeding. Floodwater rights might be subject to purchase but are not reliable in dry years and would not be good candidates for flow augmentation purchase. Surface water rights replaced with groundwater supplies would ultimately result in no net gain to the lower river and would not be viable candidates for flow augmentation purchase.



Some older people who are retiring, especially those with no family interested in continuing the operation, would consider selling. Some who have very marginal land might be willing sellers. Other candidates would be individuals whose entire land holdings are marginal financially, and not providing a sufficient return to cover the debt load. Individuals who might be interested in converting from full-time farming to hobby-farming by getting an off-farm job might also be candidates. In the Wallowa Valley wealthy individuals from outside the valley are the most likely to be new purchasers of land, because most locals can not afford the high land values. Frequently these new immigrants do not stay long. Their lack of strong local ties, and turnover make them candidates for potential water right sales.

Although there is almost no interest in permanently removing water from the land, area ranchers (especially in the Wallowa Valley) have been innovative in exploring lease options, and have leased water to support instream flows.

The primary rural land use in the Wallowa area is cattle ranching. Without water the land would go from yielding two cuttings of hay and fall aftermath to one cutting of hay. Some individuals would try for a while to buy lost hay production either locally or by importing. Others would simply cut back on the number of cattle run on the land. Many would like to subdivide and there is a big market for rural lots, but current Oregon land use laws limit opportunities for subdivision of farmland.

The Grande Ronde Valley is primarily row-cropped with many specialty crops and high value seed crops. If possible most water sellers would sink wells and continue to irrigate. This could probably be done in about 20 percent of the basin that sets over a very deep basalt aquifer. Several wells in this area have artesian pressure, bringing the deep water almost to the surface. A conversion from surface to groundwater irrigation in these areas would likely have no adverse impacts on local streamflows; and in some areas the irrigation return flows may increase river streamflows. The effects of converting to groundwater by tapping the 200-foot deep alluvial aquifer are much less certain since that aquifer is likely connected to the river. It is unlikely that the sale of natural flow water rights by converting to groundwater, even in a deep aquifer, would be acceptable for flow augmentation purchase. Those individuals who were prohibited from converting to irrigation with groundwater or chose not to could dry farm the land themselves or lease it to a neighbor.

In the Grande Ronde Valley most sellers would stay on the land dryfarming or irrigating with wells, unless they were of retirement age. If they had a large debt load they would likely sell the land. The question is more uncertain in the Wallowa Valley, in that some individuals might take town jobs if they were available. A large purchase program would likely have a depressing effect on the regional economy, making the prospect of alternative enterprises less likely. Many sellers in the Wallowa Valley might leave the valley, leasing or selling the dryland to their former neighbors or for 'hobby farm' development.

The impacts associated with greatly reducing production would be considerable. Suppliers, processors, and virtually all agricultural businesses would be negatively impacted. Reductions in agricultural businesses would lead to reductions in other businesses throughout the economy. Locals feel that the majority of the proceeds from water sales would be lost to the local economy.

Out of a total of 14,000 jobs, employment is estimated to decrease by 500-700 jobs, but most locals feel losses would be greater. The hardest hit would be farm workers, including many seasonal employees, and teenagers who normally help out in farming and ranching operations.

With the reduction in economic activity in the area, it would be more difficult to attract new investment, and more difficult to finance present operations. With more of the area depending upon dryland farming, incomes would fluctuate more depending upon weather cycles.

Taxes paid on those lands taken out of production would be reduced by about 75 percent. The reduced tax base would result in reduced services at schools, hospitals, police and fire protection, less road maintenance, etc. Fees would be created or increased to cover many services putting a greater burden on the non-agricultural community. Oregon has tax and land use laws that would prevent more traditional sources of revenue such as subdividing farm ground and raising property taxes beyond specified limits.

Population growth in the Grande Ronde valley would continue to fluctuate, dependent upon other natural resource and commercial employment which tend to change in accordance with regional economic cycles. The area may continue to experience some in-migration as industrial development slowly expands in the area, but the loss of a considerable amount of agricultural production and related job and income loss would hamper growth. Some of the Hispanic laborers who commute from the Ontario area would likely be displaced, and some non-resident aliens would have to find seasonal work elsewhere. Some older residents would likely leave the area earlier than they might have otherwise done. The greatest risk of population loss would be in the Wallowa Valley since its economic base is so greatly tied to agriculture. There would be fewer opportunities for young people and more of them would migrate out of the area. Residents are concerned that neighbors would move away and some “quality” people important to the health of the community would leave while others would be discouraged from coming to the area.

A water purchase program is certain to generate conflict. A recent proposal to federally fund a conservation project in the Wallowa subbasin that would have benefitted local irrigators and improved local fish habitat was seen by many as a federal intrusion and “water grab” and was bitterly opposed. Any federal government effort to remove water from agriculture and take it outside the basin would be very contentious and would almost certainly create a strong and cohesive local opposition. Locals who supported the program would be ostracized. After irrigation rights were converted to instream rights, there would be additional conflict. Irrigation patterns, especially those built around rotation and sharing of neighbors’ water would be impacted. Keeping part of the rotation in the stream for instream flows would frustrate the seller’s neighbors and would likely increase the difficulty of obtaining a full water supply that may depend on irrigation returnflows of the seller. Another threat to the supplies of other irrigators is the likelihood of decreased late-season flows resulting from reduced recharge of aquifers when irrigation water is removed. If these aquifers are not recharged with irrigation water, late-season streamflows are likely to be reduced.

Residents tend to feel that a water purchase program would negatively impact quality of life in their community due to conflicts over water sales, layoffs of agricultural workers, potentially reduce opportunity to rent or lease farmland, decrease local commerce, and decrease the counties’ ability to provide social services to the rural population. Residents feel that family relationships would be affected with both older members and younger members less likely to remain in the community. They feel they would lose quality people from the basin, and be less likely to attract new ones. They feel that they need to add more diversity and stability to their community to remain viable, but perceive that a purchase program would lead to less diversity and more instability. County revenues would decrease, decreasing services and putting pressure on other delivery systems, including their schools and hospitals. In general residents see a large water purchase program impacting virtually every aspect of their lives, and perceive that most of those impacts would be negative.

Grande Ronde and Wallowa irrigators have been proactive in supporting the Grande Ronde Watershed Program, which seeks to restore salmon habitat in the Grande Ronde basin. Even though streamflows are critical for both salmon habitat and agriculture, irrigators are seeking to accommodate the needs of the fish. Some landowners have agreed to lease water for instream flows, and others are willing to adjust irrigation withdrawals to minimize adverse fishery impacts. It is unclear how a water purchase program would affect the salmon in the Grand Ronde system as compared to Snake River migration, but it is conceivable that such a program could set back one of the strongest salmon recovery programs in the

region. Conflicts over water purchases have recently set back efforts in the Wallowa subbasin to simulate freshets in the Lostine River. Conflicts over a much greater purchase program and its impacts on irrigation (perceived or otherwise) could have considerable dampening effects on local salmon restoration efforts. Some residents who have been working hard to restore salmon runs feel that many people would resent a program imposed from the outside and would see that as a signal that local efforts had been of little utility.

The Confederated Tribes of the Umatilla Indian Reservation and the Nez Perce Tribe have made formal commitments to protecting and enhancing the salmon fisheries of the Grande Ronde River basin, in support of their treaty rights. They have been active in restoring anadromous fishery habitat throughout the region. It is not clear what impacts a water purchase program would have on salmon habitat in the Grande Ronde subbasin (ceded territory of the Umatilla Tribes) and the Wallowa subbasin (ceded territory of the Nez Perce Tribe). Late summer flows might increase in some areas and decrease in others. It is likely that some salmon habitat would be degraded by higher stream temperatures resulting from reduced groundwater flows.

### 8.3.2.3 Summary of Issues Expressed by Water Users and Others

The issues and views expressed by those contacted on potential effects the 1427i and 1427r scenarios are summarized below. Many of the same or similar issues views expressed were by both those associated with Reclamation irrigation service areas and those associated with natural flow irrigation service areas. These issues and views are listed first. The following notation is printed at the end of each item and is used to indicate the source of the issue or view:

(R) Reclamation irrigation service area  
(N) Natural flow irrigation service area

- *Irreversibility.* Few people are willing to permanently separate water from the land.(R)(N)
- *Viability.* It is difficult to conceive that the identified water supplies could be made available for flow augmentation on a voluntary basis, even with compensation based on full market value.(R)(N)
- *Impact on Natural Flows.* There are major concerns over the impacts on aquifers, springs, and return flows from reducing irrigation.(R)
- *Economic Impacts.* There is a fear that economic impacts would be greater than estimated,(R)(N) especially given a series of dry years.(N)
- *Tax Base.* County tax bases would be reduced greatly as a result of devaluing lands from which water had been removed.(R)(N)
- *Community Viability.* There is a concern over impacts on rural communities, many of which are already stressed.(R)(N)
- *Equity.*
  - There are concerns that communities and individuals least able to cope with impacts would be hit the worst.(R)(N)

- There is the perception that a few Snake River subbasins would receive crippling impacts, while other subbasins would remain untouched.(N)
- There is the view that much more water would be taken from natural flow areas than from Reclamation project areas.(N)
- *Timing.* Rapid implementation of flow augmentation would be a shock to communities, if implemented more slowly, communities would have time to adjust.(R)(N)
- *Institutional Constraints.*
  - Individuals can't sell water out of irrigation districts or canal companies. Irrigation water can't be transferred to instream use in Idaho.(R)
  - Water law in some states may not permit purchased water to be protected for instream flows or transferred to instream use across state boundaries.(N)
- *Future Guarantees.* Water users are afraid to lease or sell part of their water rights until they're certain that their remaining supplies would be protected.(R)
- *Effectiveness of flow augmentation.* Flow augmentation won't work. The 427,000 acre-feet currently dedicated to flow augmentation hasn't benefitted the salmon, and there's no evidence that additional water would help.(R)
- *Enforceability.* Some question whether current water purchase agreements are being enforced and suggest that the problem of enforceability would be much greater with a large purchase program.(R)
- *Abandoned Lands.* Crops could not be grown on many of the lands in the Snake River basin with natural flows. There is a concern that lands would be abandoned and become a source of dust, weeds, pests, and disease threatening neighboring lands.(R)
- *Impacts on other water users.*(N)
  - Would the old water right be left in the stream? If the full right were protected in the stream, other users couldn't get their water. Only the consumptive use of the old water right should be protected.
  - Return flows are a critical source of water for many water users. If these flows are reduced or eliminated other water users would be affected (likely without compensation).
- *Impact magnitude.* The size and concentration of the program in a few areas would change the whole character of rural communities.(N)
- *Program constraints/limiting impacts.* There is a need to limit the amount of water that could be taken out of basins, and the amount of water that could be taken out of any given area within a basin.(N)
- *Flow increases.* Some or much of the purchased water may not show up in the river.(N)

## 8.4 Recreation

Reclamation identified reservoirs and river reaches for recreation in its SR<sup>3</sup> process. For this analysis 11 reservoirs and river reaches were selected for analysis of potential effects of the flow augmentation

scenarios on recreation. Table 7-17 in chapter 7 summarizes the river reaches including recreation activities, agency designations and unique features. Chapter 7 also provides a short description for each reservoir and river reach. Additional information on these selected reservoirs and river reaches is provided in this section.

Millions of people use the Snake River system for recreational purposes in one form or another, and feel an intimate and personal sense of ownership for their favorite lake, river reach, or camping site. Idaho and Wyoming have achieved an international reputation for exceptional scenery, whitewater rafting, trout and salmon fishery, and pristine camping sites, and any change in their quality would affect both local and visiting recreational users.

Use of recreational resources in the Snake River basin has been increasing steadily each year, with many facilities becoming destination sites for out-of-state visitors. Both visitors and residents expend about 3 million visitor-days per year enjoying Idaho water resources; this total does not reflect the use of winter sports, commercial facilities, and sporting events. Water-based recreation in the Snake River basin contributes an amount in excess of \$180 million/year to state economies.

Reservoirs provide significant recreational opportunities, including boating, fishing, water skiing, sailing, camping, picnicking, viewing, and other activities. Reservoirs that are located near urban areas receive significantly greater use than remotely located reservoirs and river reaches near urban areas. River reaches are used for fishing, boating, float boating, camping, and wildlife uses.

### **8.4.1 Affected Environment**

See chapter 7 for a discussion of recreation.

### **8.4.2 Environmental Consequences**

Analysis of the effects of flow augmentation on recreation focused on two high impact areas: (1) the Snake River from Jackson Lake, Wyoming to Idaho Falls, Idaho and (2) Cascade Reservoir and the Payette River downstream to Banks, Idaho. These two areas would experience the most significant change in lake levels and river flows under the flow augmentation scenarios.

In November 1998, agency management and staff (NPS, USFS, BLM, IDPR, IDFG, etc.), representatives of the local Chamber of Commerce, and local outfitters and guides familiar with the recreational areas were contacted. The No Augmentation scenario was considered to be indistinguishable from the Base Case, so discussions were limited to the 1427i and 1427r scenarios. Information on riverflows and reservoir elevations under the Base Case, 1427i, and 1427r scenarios was provided in telephone contacts.

Based on the interviews, four general perceptions and reactions to possible change in reservoir and river flow levels became apparent:

- Implementation of the 1427i or the 1427r would degrade the overall quality of recreational opportunity on a long term basis in the Snake River basin. Effects of either scenario would not be equally distributed geographically or among user groups. The 1427i scenario would have much greater adverse impacts on recreational opportunities than the 1427r scenario.
- Relatively small changes in flow augmentation within a region could have profound effects at the community level and on personal livelihood. The greatest effects would be found on selected sub-populations and user sub-groups.

- There is considerable variability among persons and groups in perception of potential effects of the flow augmentation scenarios. These perceptions depend on the particular circumstances, experiences, recreational activities, and preferences of each person. For example, river kayakers may be relatively unconcerned with possible changes in reservoir levels or reservoir fisheries.
- Recreational activities are often antithetical, in that river flow conditions that might be good for whitewater rafters can be devastating to trout fly fishermen. Thus, change in lake levels and river flows can be expected to be variously perceived as good or detrimental, with no absolute standard.

#### **8.4.2.1 Snake River From Jackson Lake to Idaho Falls**

Although respondents gave different evaluations of the effects, depending to some degree on their particular focus on recreational use, there was general concurrence on the following:

- This section of the Snake River system is subject to considerable fluctuation in flow during a single water year and throughout the years. Although the 1427r and 1427i scenarios would have significant effects on local recreational use of the reservoirs and rivers, the induced impact of implementing either scenario would be less than the variation in natural flow and water levels in most months of the year and within most years. Impacts on streamflows would be most adverse in the months of September and October.
- The predominant river recreational use of this section of the Snake River is floating, fishing, and camping. Reduction of riverflows below Jackson Lake during February and increases in riverflows during March would not significantly affect recreational use of the river at that time since primary use of the river does not begin until early May.
- The peak period of river use is May through October, declining sharply after Labor Day. High riverflows under the 1427i scenario would potentially reduce opportunities for floatboating on some reaches in June and July. Some kayaking is done on selected reaches below Jackson Lake; this activity might be enhanced by high streamflows.
- There is concern that in-stream habitat for the native trout might be adversely affected by high riverflows in the spring and lower than normal flows in late fall. Low streamflows may significantly degrade fly fishing quality in September and October.
- Change in riverflows would probably cause commercial outfitters and guides to rebuild their marketing and operations pattern for the summer months, possibly affecting income.
- There is a steady (about 5-10 percent per year) increase in the development of both year-round and summer homes along the section of the Snake River and in the Jackson Lake and the Palisades Reservoir areas. Residents are primarily attracted to the area by the quality of recreational opportunities. A change in quality would affect property values and growth rate along riverbank areas.
- The predominant recreational use of Palisades Reservoir is motorized boating. Motorized boat users appear to be adaptable and would adjust to changes in water levels that would affect dates of use. The impact of reservoir levels upon boating is expected to be minimal unless there is an adverse impact on fish populations.

- Water sports at Jackson Lake is directly dependent on water levels. Under the 1427i scenario, early and extended drawdown might beach the marina, limit use of the reservoir for water sports, and degrade the outstanding scenic quality for which this area is known. Beaching the marina would significantly affect the local economy during July through September
- Commercial recreational use of this section of the Snake River and reservoirs has developed a national and international clientele, which supports the regional economy. Any reduction in recreational use would have immediate negative effects on income to local businesses.

#### **8.4.2.2 Cascade Reservoir and Payette River to Banks, Idaho**

Based on based on the hydrologic studies, economic studies, and discussions with key individuals, the flow augmentation scenarios would be expected to have the following impacts:

- Commercial recreational use of Cascade Reservoir and the Payette River downstream of Cascade Reservoir serves a major urban population and has become a national and international attraction. Most recreational commerce is conducted in the four months between June - October. Any change in recreational opportunity would have immediate negative effects on local income.
- The local recreational economy in the Cascade Reservoir area is growing rapidly and is a primary source of revenue to the area. Summer home development is increasing at more than 10 percent per year and upgrading in value. Recreational use visits usually span several days but some visits may last the entire summer. A reduction in water levels under the 1427i scenario could cause a 30-50 percent reduction in the pace of local development and a downturn in the local economy.
- The main attraction of the reservoir is boating and fishing. Reservoir use is directly linked to water levels, with low levels beaching boat docks and creating mud flats. A marina is planned for the year 2000. The 1427i scenario could threaten recreation income.
- Fishing quality in Cascade Reservoir is directly affected by water level and quality. Low water levels during winter can result in fish kills. Low water levels in the summer tend to foster high water temperatures during mid-summer, negatively affecting fish propagation. There is a major effort by local governments to control algae growth and contamination by phosphates. Early drawdown of the reservoir under the 1427i scenario would likely adversely affect water quality and fish productivity and reduce recreation use and associated income.

- The predominant river recreational uses of the Payette River are floating, kayaking of international renown, fishing, and camping. Some reaches have Class 4 & 5 rapids during spring flows. The peak period of use is May through September, declining sharply after Labor Day. Changes in streamflow would directly affect floatboating operations and could limit use to the highly experienced and reduce commercial floatboating income.
- Low lake levels may increase stream temperatures downstream of Cascade Reservoir and degrade stream habitat quality used by native trout. Reduction in fish population could reduce general recreation quality and use and negatively affect incomes dependent on recreation.
- Lower riverflows in September and October may significantly degrade fishing quality on the Payette River.

### 8.4.3 Issues Expressed by Community Members

The issues and views expressed by those contacted about the potential effects of the 1427i and 1427r scenarios are summarized below. Many of the issues and views were expressed by both those associated with the Wyoming area and those associated with the Cascade Reservoir area. Issues and views expressed by both groups are placed at the beginning of the list below. The following notation is printed at the end of each item and is used to indicate the source of the issue or view:

- (S) Snake River reach from Jackson Lake to Idaho Falls, Idaho.
- (C) Cascade Reservoir and the Payette River downstream.

- *Regionalism.* Residents and recreational users should not have to endure the costs and inconveniences of flow augmentation for the benefit of interest groups in other states.(S)(C)
- *Cost/Benefit.* There is a belief that the flow augmentation action is not justified by the costs, local or regional.(S)(C)
- *Loss of value/income.* There is a general belief that compensation would be appropriate for recreational homeowners loss of property value, employment losses, or income losses to commercial outfitters that would be caused by flow augmentation scenarios.(S)(C)
- *Research.* There may not be sufficient research and information to justify the flow augmentation action.(S)(C)
- *Role of Government.* The Federal Government should not impose new requirements on state and local governments in this action.(S)(C)
- *Species Protection.* Native trout habitat in Wyoming should not be degraded to protect salmon in Idaho.(S)
- *Degradation of Environmental Quality.*
  - Snake River native and cold-water fish species, fishing quality, and water quality (reservoir and river) should be protected from the potential adverse flow augmentation actions.(S)
  - Flow augmentation would cause additional pollution problems that could negatively affect native and cold-water fish species, fishing quality, and water quality (reservoir and river).(C)



## 8.5 Environmental Justice

Consideration of environmental justice in water resource planning documents is required by the 1994 Executive Order 12989. Environmental justice refers to the potential for disproportionate impacts to minority and/or low income populations. The executive order defines environmental justice as follows:

“The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs, and policies.”

### 8.5.1 Affected Environment

Minority and low-income populations in the Snake River basin are primarily Hispanic and Native American populations and others who may be involved in farm labor pools including migrant workers. Most farm laborers are in comparatively stable families, with most workers residing in the area. About one-third of the farm labor workforce is migrant, working mostly during the peak summer months of April through October.

The majority of farm laborers are Hispanics. Although minority farm workers are found in all regions, the largest numbers are employed in the Magic Valley (Twin Falls area) and the Treasure Valley (Boise, Idaho to Ontario, Oregon and Weiser, Idaho area). Minority population in Idaho are Hispanic (7 percent), Native American (1.3 percent), Asian (1 percent) and African-American (0.5 percent). The minority work force in Idaho ranges from 7,500 workers in the winter months to 17,500 workers in the peak harvest season. Most work at irrigating and harvesting food crops and orchards or in the agricultural processing firms located within the region.

The greatest concentrations of Native Americans in the area of analysis reside on the Fort Hall Indian Reservation located along the main stem Snake River and the Duck Valley Indian Reservation located along the Owyhee River. The Nez Perce Tribe, with a reservation in northern Idaho, and the Confederated Tribes of the Umatilla Indian Reservation in northeast Oregon are outside the geographic area of this analysis but have treaty rights and some ceded lands lie within analysis area (Grande Ronde River basin, Salmon River basin, and Payette River basin).

Native American and Hispanic communities in the basin rely heavily on the agricultural economies of their communities for their livelihoods. Both groups contribute to the local economies through purchases, providing services, and by conducting and supporting cultural events.

### 8.5.2 Environmental Consequences

The impact of the flow augmentation scenarios is primarily on the irrigated agriculture and recreation sectors of the economy and secondary industries related to these sectors. Economic effects of any magnitude tend to filter down and affect those at the lowest economic levels the first and perhaps to the greatest extent. Part-time and minority farm workers tend to be the most vulnerable to economic adversity, as they are the last to be hired and the first to be laid off when market conditions change. Workers in small remote communities with limited employment diversity are the most vulnerable, as there are few employment alternatives. These groups are also most likely to suffer declines in the quality of life from shifts in economic adversity and are least likely to benefit from subsidy or mitigation actions. Job retraining programs are often not productive for residents in remote communities as there is often no alternative job careers even if there is retraining.

The 1427i and the 1427r scenarios would have negative economic impacts that would filter down to part-time and minorities farm workers and workers in associated industries. Minority workers in industries not associated with crops, crop production, and agricultural support industries would not generally be affected by the flow augmentation scenarios. None of the scenarios target minority or low-income populations, nor can flow augmentation goals be achieved without economic effects filtering down to these groups.